



L. JOYCE HAMPERS
COMMISSIONER

The Commonwealth of Massachusetts

Department of Revenue

Leverett Saltonstall Building,

100 Cambridge Street, Boston 02204

December 9, 1981

Mr. T is having an addition to his Massachusetts residence constructed. The addition has been designed to use energy from the sun to reduce heating costs for the addition and for the residence as a whole. Mr. T has requested a letter ruling determining what portion of the addition will be exempt from local property taxation under General Laws Chapter 59, Section 5, Forty-fifth.

The addition will be a two-story structure with a living room and an extension of the existing kitchen on the upper level, and a playroom and a study on the lower level.

The longest wall of the addition will face south; double thermopane windows will comprise most of the south-facing wall. The windows will be equipped with thermal drapes or detachable insulation panels to minimize heat loss at night. The south-facing windows on the upper level will be set at an angle from the vertical so that exposure to the sun will be greatest during the winter months.

The upper level will have a slate floor, supported by twelve-inch joists, that will act as a heat absorber.

The lower level will have a four-inch-thick cement floor, with a gravel base beneath it.

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A "thermal storage box" will be built into the lower level. The box will contain thermal storage rods made up of a material that absorbs large amounts of heat by changing from a solid to a liquid state at about 80°F.

On sunny days, sunshine will pass through the windows of the upper level and heat the slate floor and the air above it. The warmed air will be drawn by fans through duct work running between the two levels and into the thermal storage box on the lower level. When the temperature in the structure falls below a certain point, thermostatically-controlled dampers in the duct work will open, and warm air will be drawn by additional fans from the thermal storage box to the upper level. The duct work, damper and fan system will serve no purpose other than to conduct solar-heated air between the lower and upper levels.

The addition will be heavily insulated throughout.

General Laws Chapter 59, Section 5, Forty-fifth provides an exemption from local property taxes for:

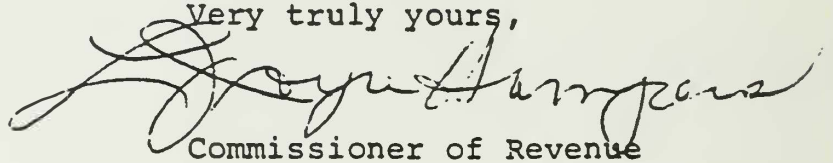
"any solar or wind powered system or device which is being utilized as a primary or auxiliary power system for the purpose of heating or otherwise supplying the energy needs of property taxable under this chapter; provided, however, that the exemption under this clause shall be allowed only for a period of twenty years from the date of the installation of such system or device."

Based on the foregoing, it is ruled that those portions of the addition the sole purpose of which is the transmission or use of solar energy will be exempt from local property taxation for twenty years from the date of installation under Chapter 59, Section 5, Forty-fifth. Components that serve a dual purpose, such as those that have a significant structural function, will not be so exempt. Specifically, the value of the thermal storage rods and storage box and the duct work,

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damper and fan system will not be included in the value of the property for purposes of local taxation. The value of the insulating materials and the windows, floors, gravel base and other structural components of the addition will be included.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Fay H. Thompson", written in a cursive style.

Commissioner of Revenue

LJH:JXD:mf

LR 81-107